AMERICAN DYESTUFF REPORTER

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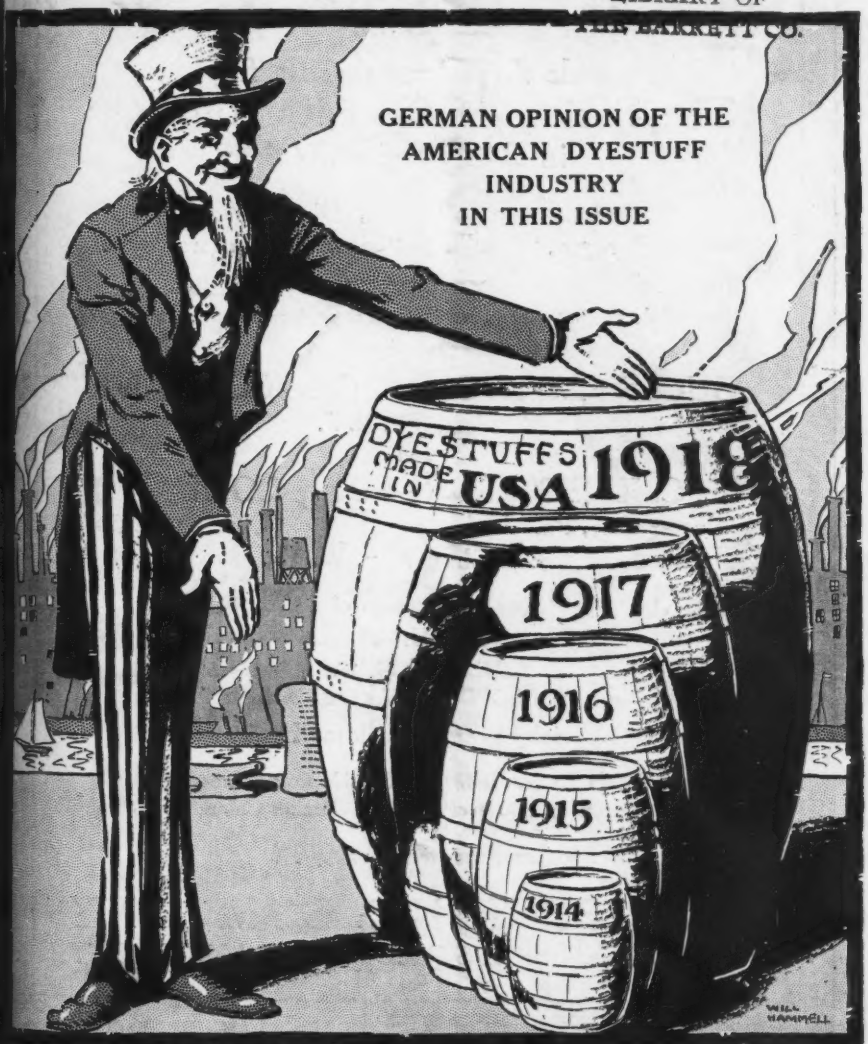

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In assuming control of the

American Dyestuff Reporter

the publisher announces the following

EDITORIAL POLICIES

To devote the Reporter wholeheartedly to the development of a permanent domestic dyestuff industry in America.

To advocate everything which will expedite this development and oppose everything which will retard it.

To eradicate the widely held conviction among consumers and the general public that American dyes are at best "makeshifts."

To expose and condemn everything in this industry which smacks of German propaganda.

To stimulate co-operation and mutual helpfulness between manufacturers and consumers.

To foster a spirit of tolerance on the part of consumers with the efforts which manufacturers are making to supply their needs.

To advocate such tariff or other legislation as may be essential to the welfare of the industry.

To encourage constructive co-operation and discourage destructive competition between manufacturers—both large and small.

To make our circulation cover every field which consumes dyestuffs and to supply these consumers promptly with authentic information regarding the development of American colors and the most approved methods of their use.

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IMMEDIATELY AVAILABLE

The keystone in the manufacture of dyestuffs is *intermediates.*

As the leading American manufacturer of intermediates of the highest grade we occupy a most favorable position for the production of *first quality dyes.*

Our immediately available colors are as follows:

Newport Direct Sky Blue	Newport Benzo Purpurine 10 B
Newport Direct Blue 2 B	Newport Sulphur Navy Blue
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Newport Direct Orange R	Newport Azo Eosine G
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Newport Benzo Purpurine 4 B Conc.	Newport Acid Blue Black Conc.

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NEWPORT TRADE MARK

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs are Used"

Vol. 3 New York, July 15, 1918 No. 3

"The Future May Be Regarded With Confidence"

So Speak Germany's Dye Manufacturers as they Watch Our Efforts to Establish Our Own Industry—A Review of the Assets of Both Sides

WHAT with the cost of living still plugging away determinedly at the altitude record and the hot weather coming on and this Von Hindenburg person making active preparations to launch a new drive, and one thing or another, one would almost think we had sufficient to keep us stirred up without being obliged to see some of our most cherished hopes dashed ruthlessly aside, and at the hands of those whom we had thought, from a commercial standpoint, at least, pretty well cowed and broken-spirited by this time.

It is the German color combine, no less, which has lifted up its voice after a long period of silence and crowed shrill defiance from the temporary security of the banks of the Rhine. In its annual report, after modestly calling attention to the comforting balance on the right side of its ledger, it proceeds to take note of those who at present have designs upon its very existence, in the following fashion:

"Owing to the length of the war, numerous competitive dye works have been established in neutral and enemy countries. A hard struggle with them is bound to come after the war. Sacrifices will undoubtedly have to be made; *nevertheless, the future position may be regarded with confidence.*"

Yes, they really mean it. And what is more, an examination of the premises upon which they base their conclusions show them to be a vast deal nearer the truth than many of us care to admit, even to ourselves. It is, of course, well known that over a year ago six of the largest German dye producers, sensing the rapid expansion of the industry among its enemies, pooled their interests for the express purpose of reconquering, in time of peace, the territory now commercially lost to them. They will act as a unit, and the German genius for cooperative effort, for governmental direction of interests of a few for the benefit of many, is too well known to need further citation here. It would be a case of "coals to Newcastle," and any eloquence which might have been employed in trying to make this point any clearer will be saved up for the advent of the Fourth Liberty Loan.

Moreover, these powerful organizations have all been promised assistance from the Imperial government in their

project. It is all very well to say that there will be no Imperial government worthy the name—no serene Highness to tenderly protect the commercial welfare of his people—after the war, and pass smilingly along. We agree with this; there can be no peace while the Hohenzollern autocracy remains in the saddle and permits a flattered and grateful people to blindly accept its guidance, but after the house-cleaning has taken place, there will still be a German Government of some kind in place of the old, and it is a certainty that no clause calling for abandonment of the promised subsidies will ever find its way into the peace terms.

We see, then, that there is a quiet feeling of confidence regarding the dye future among the Germans which has not been shaken, and which seems to show no signs of weakening as time goes on and the coal-tar chemical industries of America, England, France, Switzerland, Japan and even Sweden, are beginning to assume definite shape. And this feeling is far from the vainglorious, pompous self-love which we have, perhaps, grown to regard as part and parcel of German hopes and aims, and to look for in all their utterances. A man who is given to the practice of "bluffing" will continue to bluff until the last horn blows as long as the possibility of his being "called" means nothing worse than subsequent exposure as a common falsifier. But once let the possible consequences become such as to seriously threaten his pocketbook, and all pretence is abandoned.

Therefore, it is significant that the stock quotations of the "Big Six" continues to be exceptionally high, and shares in these companies are eagerly sought after. From the latest reports obtainable the "Badische" and "Bayer" stocks are quoted at 630, the "Hoechst" at 540, the "Actiengesellchaft" at 525, the "Greisenheim-Elektron" at 470 and the "Weiler-Ter Meer" at 280.

From further information regarding these companies, it would appear that while earning exceptionally high profits, they are more securely entrenching themselves by the accumulation of huge reserves. An important factor will, of course, be the extent to which these reserves have been invested in government bonds, and the prospective value of these bonds when the war ceases. We can see no immediate reason why such investments should depreciate to any marked extent, even with the Hohenzollern dynasty discredited and facing Allied demands for a heavy indemnity, (although this would, indeed, be a wonderfully effective weapon with which to strike at Germany's coal-tar dye industry) for it is unlikely that the Allies will seek to bankrupt the country, provided that their other demands are met in a satisfactory manner. This belief is based on President Wilson's statement of our aims with respect to the German people, which, even though he gravely considers the possibility of a trade offensive aided by government co-operation, may be interpreted to mean that after effectually beating Germany and overthrowing the Hohenzollerns, we shall then seek to limit her trade from the outside rather than to utterly crush it from within.

Another reason for German confidence may be found in the oft repeated fact of the analogousness of the dye and explosives industries. One is ever potentially the other, and hence, with Germany at war, her equipment and ability for making dyes has grown in direct proportion with her advances in the art of making the wherewithal to blow her fellow creatures to kingdom come. It is true that during the closing months of 1914 and the early part of 1915 there was a decided set-back in the activity of all her establishments. From that time on, however, their capacity for production has been pushed to the utmost, and the conclusion of peace negotiations will see her at the top-notch of efficiency in this respect.

FRED WETZEL & CO. N.Y.

With all these factors on her side, plus a very early start on the rest of the world, Germany makes out an excellent case for herself. It pays to know these things, for to be forewarned is to be forearmed, and it is well to keep firmly in mind the reasons for Germany's continued confidence to win back her lost holdings.

Now let us turn to the opposite page of the account-book and see where we stand in the matter of items which will off-set the Teuton assets.

To begin with, the war has levied a heavy toll upon the rising generation of chemists in Germany, who would naturally form the investigators and inventors of the future. The continuity of research has, likewise, been most seriously interrupted, as the attention of trained experts has been diverted to other fields with more imperative claims upon their skill.

In addition, we are now more thoroughly awake to the necessity of building our coal-tar industries firmly for the future, and every month added to the time devoted to this finds us just that much more strongly situated. Protective measures will be taken, and, again referring to the President's statement, we find unmistakable evidences of a determination to thwart German methods of unfair competition which we allowed to flourish in the past. It is quite possible that some well-established precedents will go by the board in this connection, and we may look forward to some interesting developments in government direction, or, at least, interest, in connection with our industries.

Moreover, the advantages accruing to Germany through the steady employment of her dye works for the production of munitions holds equally true here—a fact that will be clearly revealed when the first census of the industry is taken after the war. Our young chemists in the universities, due to wisdom in the administration of the draft laws, has been kept off the battlefield and spurred to heroic endeavors along lines more advantageous to their country. It is well known that when a young man graduates as a chemist and is immediately hustled into some other field of endeavor for a while, he is lost to chemistry for good and all. Our chemists constitute a powerful resource of the dye industry which we have carefully conserved, and in this respect we have fared much better than Germany.

We shall look, then, for help from Governments and committees, from scientific societies, from preferential and protective tariffs, from pure research in the universities, and from the increased knowledge born of our experience. Perhaps, in the end, our greatest asset will lie in the anti-German prejudice which will prevail for a long time after the war, and which no amount of artfully contrived propaganda will serve to diminish as long as the memory of Belgium, the Lusitania, Edith Cavell and so on through the bloody list, shall linger in the minds of men.

Frank Hemingway, Inc.

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METAPHENYLENEDIAMINE
PARAPHENYLENEDIAMINE
PHOSGENE
SALICYLIC ACID

BRITISH DYES, LTD., AND LEVINSTEIN, LTD., TO UNITE

At last the long-expected amalgamation of the two huge English dye manufacturers, British Dyes, Ltd., and Levinstein, Ltd., has been agreed upon, and an outline of the terms upon which these two will join forces has been issued by the first-mentioned, which is at present enjoying a governmental subsidy. The following plan of amalgamation will be submitted for approval at a future meeting of "British Dyes":

The nominal capital of the new company to be decided when the ultimate figures are ascertained.

The capital to be divided into (a) non-cumulative 7 per cent. preference shares; (b) preferred ordinary shares; (c) deferred ordinary shares, both entitled to 8 per cent. dividend, and all remaining profits to be divisible ratably over the preferred and deferred ordinary shares.

The "substantial capital" of each concern is to be paid for by the purchasing company as to one-half thereof in preference shares and as to the remaining one-half in preferred ordinary shares. "Substantial capital" is taken to mean the actual value of the assets, exclusive of good will, minus the liabilities to be taken over by the purchasing company.

The value of land, buildings and plant owned by each company before the war is to be taken at a valuation to be agreed. All expenditure on such property subsequent to the outbreak of war at the value ascertained by negotiation with the government for the purpose of settling excess profits duty.

Stock is to be taken at the market prices current for the day.

Good will is to be paid in deferred ordinary shares by the new company in addition to the price ascertained as the value of the "substantial assets" in the proportion of 55 per cent. to British Dyes and 45 per cent. to Levinstein. Comprised in the good will are the current contracts and also the benefits to be derived under the contracts of certain foreign manufacturers, which include large sums for information in respect of processes of manufacture, etc.

"AN INGLORIOUS ROUT"

Under the above heading Dr. Charles H. Herty in an editorial in a recent issue of the *Journal of Industrial and Engineering Chemistry*, again tells of the unnecessary and evil effects of blanket refusals to guarantee American dyes, and calls attention to the wholesome effect of the National Aniline & Chemical Company's recent graphic demonstration as follows:

"Among the many difficulties the new American dyestuff industry has had to overcome, none has been more nagging, more malicious, and less founded on fact than the prejudice engendered by the oft-heard phrase "American dyes are not fast." That this propaganda has been quietly and subtly promoted by those who wished to preserve for post-bellum days the American market for German dyestuffs has been understood by those who knew the facts. But the propagandists capitalized our national weakness for the 'imported' brand, and the one-time prevalent belief that the Germans possessed certain magical secrets which enabled them alone to make dyes worthy of confidence. Our good people of the trade fostered their designs by placarding their goods with such statements as 'The color of these goods cannot be guaranteed.'

"It was the old story of 'giving a good dog a bad name,' and against this propaganda counterstatements have proved of little avail. However, the poisonous slander received its effective antidote during the recent Textile Exposition in New York, in the clear, legitimate, and efficient demonstration by the National Aniline and Chemical Co., Inc., of the relative qualities of American and German dyestuffs. Comparative exhibits were made of fabrics

dyed with foreign and domestic products, and subsequently subjected to similar conditions approximating those of daily use. In this contest the American products fully held their own. To meet the possible criticism that the tests may not have been genuine, a dyestuff laboratory was installed, and there, upon request, comparative experiments were carried out before the eyes of the skeptical. Here, too, the results substantiated all that the most ardent advocate of the American industry had claimed. Now the press is doing its part in publishing these facts to the world. Another German drive has been stopped, and as the exhibit and laboratory travel to various cities it is safe to predict that the drive will be turned into an inglorious rout."

The Jones & Laughlin Steel Co., Pittsburgh, has awarded contract for the erection of a by-product coke plant that will have 300 ovens. The plant is to be complete in every respect, and will be equipped for the recovery of ammonium sulphate, tar, benzol and toluol. According to reports the output of ammonium sulphate and pure toluol will be sold to the Government for war purposes.

The Indigo Cess Act of British India became effective on April 1, 1918. Indigo produced in British India and exported to any port outside of British India or to Aden is subject to cess at the rate of 1 rupee ($0.3244) per maund of 82 2-7 pounds. Mixtures of indigo with other substances shall be taxed on part of the total weight, in a manner to be determined by later regulations. The returns of this tax are to be used for research connected with the indigo industry.

The National Aniline & Chemical Co. has plans under way for the construction of a six-story, reinforced concrete, brick and steel factory addition to the company's Buffalo works. The cost of the proposed addition is estimated at $300,000.

American Dyewood Co.

. . . *Manufacturers of* . . .

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Importers of

Aniline Colors *and* Indigo

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AMERICAN DYESTUFF REPORTER

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HOWES PUBLISHING COMPANY
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Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Editor and Publisher

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DISCREDITING AMERICAN DYES

At a recent meeting of the National Cloak, Suit & Skirt Manufacturers Association, held in Cleveland, the question of unsatisfactory dyestuffs came up for discussion. It was reported by several members that many garments had been returned by retailers during the past season on account of the colors used in dyeing the materials not proving fast. It was further stated that two large woolen mills had refused to bear any part of the loss entailed by these returns. The problem was discussed at some length and it was eventually decided that members of the Association would hereafter place on cards to be attached to all garments which they sold and also on all invoices a statement to the effect that the textile mills of the country were unwilling to guarantee colors and that it was, therefore, impossible for the garment manufacturers to do so. It was also recommended that retailers be advised to pass on this warning to consumers.

That so large an organization as the National Cloak, Suit & Skirt Manufacturers Association should take an attitude calculated to work so much harm to the American dyestuff industry is most deeply to be regretted. More than this, it is to be utterly condemned as being based on fundamental untruths and as being most highly unpatriotic.

The fact of the matter is well known to all who are familiar with the development of the American dyestuff industry to-day—that a great majority of shades for woolen and mixture dress goods can be produced equal in fastness to those formerly imported. It is, of course, a fact that the selection of colors is by no means as varied as it was before the war but this lack is being remedied as fast as American chemists can solve the difficulties involved. There can be no doubt that dyestuffs of American manufacture are of a fastness equal to any normal commercial tests, and are available in sufficient variety, so that there is no occasion for any manufacturer to endeavor to shift the blame for the failure of his goods to meet requirements of fastness onto the dyestuff manufacturer. In practically every case where goods have proven lacking in fastness we believe that the difficulty lies with the dyer. This fact was well pointed out by John S. Boyd, of John S. Boyd Company, manufacturers of velvets, in a recent letter given to the trade press. In part Mr. Boyd said:

"There seems to be a sad misunderstanding regarding the dye situation in this country, and its relation to the garment trade, especially with regard to fastness of colors.

"In all my 25 years' experience with dyes of all types and their different uses and processes of manipulation, I am fully convinced that it is right up to the dyer principally, and this whole question of fastness is not so much the fault of the color manufacturers.

"It goes without saying that, during the last few years, we have not had the same opportunity of selection of dyes as formerly, because of the limited number of types of colors produced, but I might add that there has been a very material improvement in this respect during the past two years.

"Owing to the limited selection, it is, of course, a matter of the intelligence and skill of the dyer in producing results which he had hitherto attained, and some have no doubt been somewhat careless or rather have not been persistent enough in their research work, as to proper selection and source of supply.

"As stated above, however, there is every opportunity now to obtain the best of results and in the most unlimited number of shades. The color manu-

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DU PONT DYESTUFFS

Announcing
The Production of Indigo

The first achievement to mark the entrance of E. I. du Pont de Nemours & Company into the dyestuffs industry is the production on a very large scale of Synthetic Indigo. The difficulty of this undertaking from a chemical and technical point of view and the importance of it from a commercial and industrial standpoint are too well known to be emphasized here.

The manufacture of Indigo from coal tar to the finished product marks the beginning of the production of *fast colors* in the United States and hence a new epoch in the Chemical Industry of this country. It will soon be followed in a progressive way by the synthesis of other most difficult and valuable dye intermediates and dyestuffs in order to insure fully the independence of the United States from foreign products.

E. I. du Pont de Nemours & Co.

Dyestuff Sales Department

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The Arlington Works, 725 Broadway, N. Y., Ivory Py-ra-lin and Challenge Collars.

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DU PONT

facturers of U. S. A. are certainly to be congratulated on the progress made in every branch of the industry.

"With the above explanation, I wish to take exception to the misleading statement that colors made in U. S. are not fast and cannot be guaranteed as fast, and especially do I consider it a very unwise move on the part of garment manufacturers to put cards on garments with the statement that manufacturers do not guarantee colors, as much injury to our American trade would be done by such a method of procedure.

"The garment manufacturers can today get their merchandise from sources where the colors will be guaranteed as fast as any dyed with foreign manufactured color. It all depends upon selecting the proper source of supply, just as it has been even more necessary for the dyer to be very careful of his source of supply in selection of dyes.

"Within a very short time, the U. S. A. will be absolutely independent of any foreign source of supply for all its colors and chemicals of any kind, and there will be soon an unlimited number of dyes for easy selection for all purposes. By this I mean, that whereas, now dyers have to be more skillful to manipulate the small range for selection to get all their results, this difficulty will soon change, and we shall have all the varieties and types we used heretofore with the same ease of selection for the most exacting purposes."

The action of the National Cloak, Suit & Skirt Manufacturers Association in voting to affix to the garments sold by its members tags discrediting American dyes is an example of the sort of thing which American dyestuff manufacturers must combat with every means at their disposal. We do not for a moment suppose that the action of this Association was prompted by German influence but it is undoubtedly a fact that if the German dye manufacturers were endeavoring to spread propaganda throughout the country detrimental to the American industry they could have found no better means to their end than in stimulating just exactly such actions as the one above referred to. It would seem to us that the Dyestuff Manufacturers' Association, or some other properly accredited body, should see to it that no actions of this sort are allowed to pass unchallenged.

THE EVENING MAIL EXPOSÉ

The arrest of Dr. Edward A. Rumely, publisher of the New York *Mail* and the subsequent disclosures in regard to the German ownership of this paper unearthed by the District Attorney's office, give an illustration of what some believe is going on in the dyestuff field.

Since Dr. Rumely acquired possession of the *Mail* there have been repeated rumors of its essential German character but until the developments of last week nothing of a definite nature had been proven against this newspaper. There are in the dyestuff field to-day many firms which have, or have had in the past, more or less definite German affiliations. In practically every case it is now alleged that all relationships of this sort have been completely severed and that the concerns in question are American to the core.

In view of the disclosures concerning the *Mail* and in the light of many other similar affairs it would seem that the dyestuff consumers of the country who wish to aid the American industry would do well to exercise every precaution before patronizing firms against whom there may be the faintest suspicion of German taint. The increasing activities of the alien property custodian and of the district attorney's office will, no doubt, before many more months have passed make it possible to say, with a reasonable degree of assurance, which concerns are of an enemy alien character and which are not. In the meantime, however, all that a consumer who wishes to be on the safe side can do is to use every reasonable precaution and to view with suspicion all firms which are not unimpeachably American in character.

The capital of the Cassela Color Company, New York, has been reduced from $150,000 to $50,000.

THE INFLUENCE OF TEMPERATURE IN DYEING

By C. M. WHITTAKER, B.Sc.

CORRECT observation of temperature in modern dyeing is becoming a factor of ever-increasing importance. There are few branches of dyeing in which it does not play its part, while the constantly growing variety of union fabrics being introduced — consequent upon present wool restrictions—is impressing its importance upon dyers who have not had to bother with the dyeing of mixed fabrics until recently.

One of the first branches of dyeing in which temperature plays an important part is in the dyeing of khaki on wool with the help of Alizarine Brown M. This color falls out of solution below 100 deg. F., so that the dyebath on starting dyeing should never be below this temperature. It is a curious fact that if the color is allowed to fall out of solution it never gives the same color value as if the color had been kept in solution. Lack of observation of this important point has been the cause of widely varying shades dyed on the same class of wool with the same weights of color out of the same cask. On the attention of the dyer being called to the necessity of seeing that the dyebath never fell below 100 deg. F., the trouble automatically disappeared. A very good example of the utility of the thermometer in the dyehouse.

A detailed study of the rate of dyeing of direct cotton colors at varying temperatures is very instructive, and enables the dyer to choose the most suitable colors for dyeing artificial silk and mercerized cotton, since for these purposes colors that possess a good affinity at low temperatures are naturally the most suitable.

Chrysophenine G is an interesting color from this point of view, because it dyes as full a shade at 100 deg. F. as it does at boil; moreover, the shade is equally fast to washing when dyed at this low temperature as when dyed at the boil. This goes to prove that the color actually dyes at this temperature and is not merely painted on. This fact marks out the color as most suitable for dyeing artificial silk and mercerized cotton. Were it not for the fact that it stains the wool at low temperatures it would also be admirable for filling up the cotton in union goods and for covering burls.

Chlorazol Fast Yellow B offers a complete contrast to Chrysophenine in that it has to be dyed at the boil to obtain the best value out of the color; moreover, shades dyed below the boil are not as fast to washing as those dyed at the boil.

Benzo Fast Orange S and Benzo Fast Scarlet 4 BS are interesting colors in that if the same percentage is dyed cold, 100 deg. F., 120 deg. F., 140 deg. F., 160 deg. F., 175 deg. F., 195 deg. F.,

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and boil, the shade is very poor and thin until 175 deg. F., when the affinity for the fibre jumps in a remarkable way. These colors are therefore not very suitable for burl dyeing, though Benzo Fast Scarlet 4 BS has one good property from this point of view in that it leaves the wool unstained. Chlorazol Red A is a color like Chrysophenine in that it dyes as full a shade at 100 deg. F. as it does at the boil, whilst Chlorazol Fast Red 10 B must be dyed at the boil to get full value out of the color. Chlorazol Violet WBX is a color which dyes very well at low temperatures, having a good affinity at 100 deg. F., and so is very suitable for artificial silk, mercerized cotton, and burl dyeing. Chlorazol Violet BN, on the other hand, must be dyed at the boil to obtain its full color value. Ingrain Black 4 B (B H Black) is a color which gives good value at 100 deg. F., but not proportionately as good value as Chrysophenine. Sky Blue FF may be classed along with B H Blacks for good affinity at low temperatures. Benzopurpurine 4 B is a color which does not give good value until it is boiled.

Another point which these dye tests of direct cotton colors at different temperatures illustrate is that the shade of some colors varies according to the temperature at which it is dyed. Chlorazol Black E Extra is much redder in shade dyed at low temperatures than when dyed at the boil; moreover, the shade dyed at low temperatures is not as fast to light. Ingrain Black C is another color which is much redder at low temperatures. Sultan Scarlet F is much yellower in shade when dyed at temperatures below 100 deg. F. than the shade obtained above these temperatures: the shade swings over from yellow to blue at 100 deg. F., whilst the fastness to washing is much poorer below 100 deg. F.

Another lesson may also be learned from dye tests on these lines. Such tests show very clearly the rate at which the individual colors dye on. It follows that colors which dye on at the same rate will, as a general rule, dye more level in compound shades than colors which dye on at widely varying temperatures.

Turning to the many branches of union dyeing, it will be found that the employment of the correct temperature is the keynote to successful results. Considering the dyeing of wool and silk mixtures it is extraordinary the range of temperature required to get solid shades on both fibres. In general terms it is usually correctly stated that at high temperatures the wool is dyed the heavier and that vice versa the silk is dyed the heavier at low temperatures. It follows, therefore, that there is a mean temperature with most colors at which both fibres will be dyed as nearly solid as it is possible to get them. Tartrazine gives a solid shade on wool and silk union at 100 deg. F., while at the boil the silk is practically undyed. Quinoline Yellow gives a solid shade at 140 deg. F. Cardinal Red J dyes at 100 deg F., Acid Violet F dyes solid at the boil. Bordeaux B is best at 160 deg. F. Croceine Scarlet 3 B is solid at 175 deg. F. All these results are with acid colors dyed with sulphuric acid. When one considers the wide range of temperature required by the above colors it will readily be realized how difficult it is to select a range of acid colors which will dye wool and silk solid in

CLEARING HOUSE
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COLORS

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FRED WETZEL & CO. N.Y.

compound shades at the same temperature.

Turning to direct cotton colors, Chrysophenine, Chlorazol Brown G, Chlorazol Deep Brown B, Chlorazol Sky Blue FFS, Chlorazol Green G, Benzopurpurine 4 B all dye wool and silk solid at 195 deg. F. From which it will readily be gathered that it should be much easier to dye solid compound shades on wool and silk with direct cotton colors than with acid colors. This is actually the case, and the writer always uses direct cotton colors in preference to acid colors for dyeing wool and silk unions when the shade will permit; of course, with certain bright shades one is compelled to use acid colors.

Consequent upon the shortage of acid for carbonizing purposes burls are of much more frequent occurrence and consequent trouble than formerly. As a natural sequence the demand for colors suitable for burl dyeing is greater. The use of the correct temperature in burl dyeing is very important. If burl dyeing is carried out cold the wool is, of course, left the cleanest, but there are several colors available which will not appreciably stain the wool at temperatures as high as 100-120 deg. F. Such colors are Chlorazol Blue B, Afghan Yellow GX, Chlorazol Fast Yellow NX, Chlorazol Black E Extra for burl dyeing. It is really surprising what a difference in the depth of shade is obtained in burl dyeing by an increase in temperature of 20 deg. F. A great saving of dyestuff may be effected thereby, which is well worth effecting in these days of high color prices.

Chlorazol Black E Extra for burl dyeing is a good example of the advantage of higher temperatures in burl dyeing. A marked increase in depth of shade is obtained by burl dyeing at 100 deg. F. than cold, while the addition of soda ash is also very beneficial in getting value out of the color. A warning must be given against taking the temperature too high, because that would be false economy, as the color would stain the wool too much.

The maintenance of the correct temperature is also of the highest importance in the dyeing of vat colors. If the correct temperature is not observed one is certain to get very poor results. It is very instructive to make comparative dyeings of the same percentage of Chloranthrene Blue BD when the effect of temperature is strikingly demonstrated. If 10 per cent. Chloranthrene Blue BD is dyed at 140 deg. F. (the correct temperature), 160 deg. F., 175 deg. F., 195 deg. F. with the same amount of caustic soda and hydrosulphite pdr. conc., the dyeings being subsequently soured and soaped together in order to have the conditions identical, it will be found on examination of the dye tests that the shade dyed at 140 deg. F. is the best, with a progressive deterioration of the shade both in beauty and depth as the temperature of the dyebath increases, till the one dyed at the boil is very much greyer and duller in tone and at least 50 per cent. weaker than the shade dyed at 140 deg. F. These experiments illustrate in a very striking manner the effect of temperature in the dyeing of vat colors.—*Dyer and Calico Printer.*

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METHYLENE BLUE
METHYL VIOLET
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NATIONAL SULPHUR BLUE L

This is the latest addition to the series of Sulphur Blues now being manufactured by the National Aniline & Chemical Company, Inc., and places in the hands of dyers a product possessing considerable brilliancy.

This new blue is applied to cotton in the usual manner. Dyeing proceeds uniformly at a temperature of 140° F. The dye bath is charged with a quantity of the dyestuff necessary for the desired shade, together with an equal weight of sodium sulphide concentrated, and also 3 to 5 per cent. of soda ash, and 15 per cent. of Common Salt. Complete reduction of the dyestuff in the bath is noted when the color of the solution changes to a reddish-gray.

National Sulphur Blue L is advantageously aftertreated with metallic salts, which are applied in a separate bath. Those recommended, with this mode of application, are bichromate of soda and acetic acid which slightly reddens the shade. Sulphate of copper (bluestone) and acetic acid dulls the shade, while a combination of bichromate of soda, bluestone and acetic acid produces a shade which is an intermediate between those which are produced with the metallic salts used singly.

Fastness of the dyeings produced with this new type of blue is very good; to *light*, it is very satisfactory and will answer for nearly all requirements; to *ordinary washing*, the shades are excellent, but under the influence of hard washing, the shade loses slightly although both cotton and wool remain unstained; to *cross-dyeing*, the shade does not lose in depth, but is made slightly duller, but white wool and cotton remain quite clear. The dyed shades are particularly fast to hard fulling.

On the whole, it is a most satisfactory dyestuff, and will be found to meet the requirements of cotton dyers who have been in need of a fast bright blue of this type.

Dyers interested will, upon request to the National Aniline & Chemical Co., be supplied with full working details, with product sample, and sample dyeings.

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THREE FLOORS ONLY FOR CHEMICAL EXPOSITION

The permanent slogan adopted by the managers of the Fourth National Exposition of Chemical Industries: "Expositions are the timekeepers of progress," has taken on an added significance for us since it was first uttered by President McKinley. And the progress of our chemical industries during the entire year, when graphically demonstrated in its entirety next September, will, we venture to predict, be something to startle even those who have been in close touch with one or more phases of it.

If P. T. Barnum were alive to-day he would find out his public no longer delighted in being "fooled." A change has taken place, due in large measure to the sobering effect of a world-wide and bloody struggle against those who would make the world *Hun*safe for democracy, which would undoubtedly cause the great showman to rub his eyes. And for this reason, educational events of the character of the Chemical Exposition have now become as much of an institution among us as our elections, taxes or daily papers.

There is but little to add as yet to the plans announced in THE REPORTER last week. Of paramount importance to exhibitors, however, is the news that the management unexpectedly finds itself unable to secure the fourth floor of the Grand Central Palace to be a part of the exposition, as originally in-

tended. As there are but few spaces left, this will probably mean that a large number of those who intended to exhibit will be disappointed. Nevertheless, the approaching show will still be larger than that of last year, when a number of booths on the third floor were untenanted.

The motion-picture and conference hall will be located at the extreme rear of the third floor. The program of motion pictures to be presented is expected to furnish several surprises, although it is not in final shape for a detailed announcement. However, it is rumored that two or three of the largest exhibitors are laying plans for some unusual "stunts" in the shape of films especially prepared for first run at the exposition. The nature of these is being kept secret until they are completed.

Specific subjects to be dealt with in the general motion-picture program, the titles of which are to be announced later, will be Potash, General Chemical Engineering, Acids, including nitric and sulphuric; the Ceramic industries and, possibly, the Metal industries. Special groups of pictures will also be shown portraying in detail such subjects as recent progress in the development and application of our water-power, carelessness in the industries, with its attendant destruction of life, wealth and resources, recent progress in the oil industries, etc.

THE ELECTRICAL THEORY OF DYEING

At a recent meeting of the West Riding Section of the Society of Dyers and Colorists, which was held in Bradford, England, a discussion on "Theories of Dyeing" was opened by Wm. Harrison, M.Sc., of Leeds University.

There are three main theories—the chemical, the mechanical, and the electrical—and Mr. Harrison strongly favors the last-named. The chemical theory, he said, assumed that the fibres of wool, silk, or cotton formed chemical compounds with the dyestuffs. In support of this theory, Knecht proved that dyestuffs of homologous series were absorbed by wool in proportion to their molecular weights, but no evidence had been put forward in favor of applying the theory to cotton dyeing. The mechanical theory was based on the observation that substances of an indifferent nature, such as glass beads and quartz powder, could be dyed to a small extent. Of these examples an explanation was afforded by the electrical theory. The surface tension theory had been shown to be untenable by Lewis ("Phil. Mag.," 15/6, 499, 1908). In the electrical theory (compare Harrison, "Jour. Soc. Dyers and Colorists," December, 1911) four factors were taken into account: (*a*) The molecular movement of the dye particles; (*b*) the electrical charge on the dye and on the fibre; (*c*) the surface of the fibre, including that within its pores; (*d*) the size of the dye particles. The rate of dyeing was governed by the first two of these factors; the total absorption of dye by the last two.

In the discussion following the paper, the author further pointed out that the electrical theory is not opposed to the chemical, but that it provides explana-

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tions where the purely chemical theory fails to do so. While, he said, it was quite easy to offer a chemical explanation for the liberation of hydrochloride acid from sodium chloride by cotton and by quartz, on the assumption that these bodies possess faintly acid properties, it was difficult to explain chemically why all negatively charged colloids produced the same effect—for example, paraffin wax and colloidal gold. If chemists were prepared to admit that all these bodies could combine with sodium to form sodium compounds, then the chemical theory would become identical with the electrical theory.

NOTES OF THE TRADE

According to a recent report from Java, a great scarcity of all kinds of dyestuffs exists there.

Charles E. Lefevre has become associated with H. Carroll Brooke in the management and operation of the Edgewater Dye and Finishing Works, Philadelphia, Pa. Mr. Lefevre was formerly connected with the Millville Manufacturing Co., another Quaker City concern.

R. M. Williams, General Manager of the Hellenic Chemical & Color Co., Inc., advises us that his concern recently negotiated four deals involving over 100 carloads of caustic soda. In addition to Mr. Williams, the staff of the Hellenic Company now includes I. J. Hawtof, as head of the Chemical Department; J. Russo, in charge of the manufacture of dry colors; and E. Feuer and E. Garretson, who are in charge of aniline colors.

Evidently unwilling to wait for the close of the war before beginning the final overthrow of German supremacy in the coal-tar chemical industries, Allied airmen recently bombed—among other things—the plant of the "Badische Anilin und Soda Fabrik" on the banks of the Rhine. This, of course, does not balance the score for one single hospital or Red Cross station, but we have the satisfaction of knowing that our aviators operated with such telling effect that a portion of the works caught fire and blazed merrily for several hours.

Interest is being manifested by the Canadian dye trade in the decision of Hiram Walker & Sons, distillers, Walkerville, Ontario, to manufacture aniline and other dyes. The firm is planning the erection of a $1,000,000 plant on the Sandwich River, while at Walkerville a factory will be built to manufacture toluol.

The J. H. & C. K. Eagle Co., Paterson, N. J., are preparing to increase their facilities for dyeing and finishing.

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The application of dyestuffs to textiles is as important as their production. The technique of this branch of the color industry has for years commanded the best talent among those dyestuff distributors who have catered to the highest class of trade.

An intimate knowledge of the possibilities of every dyestuff is often necessary to meet the particular requirements of the consumer. Dyeing is a chemical, not a mechanical process, and the variation of local conditions, due to differences in quality of water, steam and chemicals, makes the dyehouse problem an individual one.

Such problems are welcomed by the technical department of this company, which is manned by chemists who have been picked because of their knowledge, practical experience and demonstrated ability. We have long maintained well-equipped laboratories at our different offices for this purpose, and invite inquiries and extend, without any obligation on the part of our customers, our services to all who stand in need of them.

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